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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,871	02/08/2002	Dan A. Steinberg	23091/15 (ACT-177)	8729

26086 7590 09/16/2003

HALEOS, INC.
3150 STATE STREET
BLACKSBURG, VA 24060

EXAMINER

KNAUSS, SCOTT A

ART UNIT PAPER NUMBER

2874

DATE MAILED: 09/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,871

Applicant(s)

STEINBERG, DAN A.

Examiner

Scott A Knauss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10,20,23 and 26 is/are allowed.
- 6) ☒ Claim(s) 1-3,5,8,9,11-13,15,18,19,21,22,24 and 25 is/are rejected.
- 7) ☒ Claim(s) 4,6,7,14,16 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The amendments and arguments in the response filed 8/29/03 have been entered and carefully considered by the examiner. However, in light of the remarks set forth below, the arguments are not found to be persuasive, and the original rejection has been maintained and is made **FINAL**.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3,5,8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,896,481 (Beranek et al).

Regarding claim 1, Beranek discloses a fiber optic device in figs. 3a-d comprising:

- a substrate #200 having a groove #212 with a surface

- a fiber stop #216 having a second surface

- a bonding material (solder - see col. 6 lines 1-2)

- a fiber #220 having a third surface (outer surface) in the groove #212

Beranek does not, however, explicitly disclose a wettability that increases in the direction of the fiber stop.

However, in a previous embodiment, Beranek discloses that a fiber may be only metallized in the area where it is to be bonded (see fig. 1, #40), and it is apparent in fig. 3c that the fiber is only bonded in a second groove #210, thus it would have been obvious to one of ordinary skill in the art to only metallize the region of the fiber placed in second groove #210, in order to bond the that region to the second groove #212 and minimize the amount of metallization needed. If the arrangement of Beranek in fig. 3c is thus modified, it can be considered to have a wettability (i.e. adhesion to liquid solder) that increases in the direction of the fiber stop, since the rest of fiber #220 is unmetallized, and only a region near the fiber stop is in fact metallized.

Regarding claim 2, the bonding material is solder, as previously mentioned.

Regarding claim 3, Beranek, as modified above, discloses selective metallization (metallization of a specific region) on at least the fiber surface.

Regarding claim 5, the metallization on the third surface (the fiber surface) can be considered to be distal from the fiber stop, since it is only present in the region of groove #210.

Regarding claims 8 and 9, the second groove #210 can be considered to be a pit with tapered sides in the substrate, the pit clearly being deeper than groove #212.

Regarding claim 21, Beranek discloses the use of a fiber #220 but does not explicitly disclose the use of a fiber stub within a groove.

Nevertheless, it is well known in the prior art to locate a stub in a groove. Such a configuration is desirable because it enables a second fiber to be removably connected to an optical device fabricated on a substrate.

Therefore it would have been obvious to one of ordinary skill in the art to locate a fiber stub in the groove disclosed by Beranek for the purpose of enabling a second fiber to be removably connected to an optical device on the substrate of Beranek.

Regarding claim 24, Beranek fails to explicitly disclose the use of a v-groove in the embodiment of fig. 3. However, Beranek discloses a device in fig. 1 having a similarly shaped groove, and discloses in col. 3, lines 13-14 that the grooves may be either v-shaped or the shown truncated v-shape.

Therefore it would have been obvious to one of ordinary skill in the art to select any desired shape for the grooves #210, #212 and #216 for the purpose of securing a fiber in place. Furthermore, it has been held that more than a mere change in form is necessary for patentability (*Span-Deck Inc. v. Fab-Con, Inc.*) 215 USPQ 835.

5. Claims 11-13,15,18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beranek et al in view of US 5,717,803 (Yoneda et al).

Regarding claim 11, as stated above regarding claim 1, Beranek discloses a method for locating a fiber stub in a groove in figs. 3a-d, comprising:

- a substrate #200 having a groove #212 with a surface
- a fiber stop #216 having a second surface
- a bonding material (solder - see col. 6 lines 1-2)
- a fiber #220 having a third surface (outer surface) in the groove #212

Beranek does not, however, explicitly disclose a wettability that increases in the direction of the fiber stop, and pressing the fiber against the stop by surface tension between the bonding material and at least one of the first, second and third surfaces.

Yoneda, on the other hand, discloses a similar type of device in figs. 6-8 for locating a fiber in a groove, in which selective metallizations #4,14,16 are self aligned with each other via surface tension of the solder (see col. 7, lines 10-14). Such an arrangement is advantageous because it enables a fiber to be positioned with higher accuracy (col. 7, lines 14-16).

Therefore it would have been obvious to one of ordinary skill in the art to replace the metallized regions in second groove #210 and on fiber #220 with the selective metallized regions #4,14,16 as disclosed by Yoneda in order to provide more accurate positioning of fiber #220 in the fiber device shown in fig. 3c of Beranek. The fiber device as modified by Yoneda would then have increased metallization (and thus increased wettability) in the direction of the fiber stop (since that is the only part of the fiber which

would be metallized), and the surface tension between the bonding material and the metallized regions would serve to press the fiber against the fiber stop.

Regarding claim 12, the bonding material is solder, as previously mentioned.

Regarding claim 13, Beranek, as modified above, discloses selective metallization on at least the fiber surface.

Regarding claim 15, the metallization on the third surface (the fiber surface) can be considered to be distal from the fiber stop, since it is only present in the region of groove #210.

Regarding claims 18 and 19, the second groove #210 can be considered to be a pit with tapered sides in the substrate, the pit clearly being deeper than groove #212.

Regarding claim 22, Beranek, as modified, discloses the use of a fiber #220 but does not explicitly disclose the use of a fiber stub within a groove.

Nevertheless, it is well known in the prior art to locate a stub in a groove. Such a configuration is desirable because it enables a second fiber to be removably connected to an optical device fabricated on a substrate.

Therefore it would have been obvious to one of ordinary skill in the art to locate a fiber stub in the groove disclosed by Beranek for the purpose of enabling a second fiber to be removably connected to an optical device on the substrate of Beranek.

Regarding claim 25, Beranek, as modified, fails to explicitly disclose the use of a v-groove in the embodiment of fig. 3. However, Beranek discloses a device in fig. 1 having a similarly shaped groove, and discloses in col. 3, lines 13-14 that the grooves may be either v-shaped or the shown truncated v-shape.

Therefore it would have been obvious to one of ordinary skill in the art to select any desired shape for the grooves #210, #212 and #216 for the purpose of securing a fiber in place. Furthermore, it has been held that more than a mere change in form is necessary for patentability (*Span-Deck Inc. v. Fab-Con, Inc.*) 215 USPQ 835.

Allowable Subject Matter

6. Claim 10 was previously allowed. Claim 20, previously identified as containing allowable subject matter has been rewritten in independent form and is allowed. New dependent claims 23 and 26 are also allowed

7. Claims 4,6,7,14,16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 4 and 14, the prior art fails to disclose a fiber optic device and method for located a fiber in a groove as set forth in claims 1 and 11, wherein the groove has a tapered metallization providing increased wettability in the direction of the fiber stop.

Regarding claims 6,7,16 and 17, the prior art fails to disclose the increased wettability in claims 1 and 11 being provided by the presence of selective metallization on the third surface (fiber surface) and wherein the second surface (fiber stop surface) is also metallized.

Remarks

8. The applicant has traversed the examiner's rejection by arguing that the Beranek reference does not inherently disclose a wettability that increases in the direction of the

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fiber stop. However, the examiner's rejection was not, in fact, based on inherency. The examiner's rejection is based on the fact that if the fiber #220 is only metallized in the region of groove #220, and one looks at the fiber from a distal end, the surface of the fiber has more wettability close to the fiber stop due to the presence of the metallized region. Thus, if one looks from a distal end of the fiber, the surface of the fiber could be considered to have a wettability which increases due to the presence of metallization in the direction of the fiber stop.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,485,191 (Sato) and 5,550,088 (Dautartas et al) disclose other known devices using fibers located in grooves.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A Knauss whose telephone number is (703) 305-5043. The examiner can normally be reached on 9-6 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308 - 4819. The fax phone number for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Scott Knauss

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sak
September 11, 2003


HEMANG SANGHAVI
PRIMARY EXAMINER